AMENDMENT(S) TO THE SPECIFICATION

Please add a paragraph beginning at page 1, line 3:

CROSS REFERENCE TO RELATED APPLICATION

The present application is a 35 U.S.C. §§ 371 national phase conversion of PCT/SE2004/001211, filed 19 August 2004, which claims priority of Swedish Application No. 0302246-4, filed 20 August 2003. The PCT International Application was published in the English language.

Please replace the paragraph beginning at page 1, line 5, with the following rewritten paragraph:

The present invention relates to an arrangement and a method for controlling a combustion engine ~~according to the preambles of claims 1 and 11~~ so that self ignition occurs at an optimum crankshaft angle by control of the compression ratio in the cylinder.

Please replace the paragraph beginning at page 2, line 11, with the following rewritten paragraph:

This object is achieved with ~~the arrangement of the kind mentioned in the introduction which is characterised by the features indicated in the characterising part of claim 1~~ an arrangement and a method for controlling a combustion engine, e.g. of the type called HCCI engine. A control unit controls the self-ignition of the fuel mixture towards an optimum crankshaft angel (cad_{iopt}) within a load range (L_{tot}). The load range (L_{tot}) can be divided into at least two subranges (L_I, L_{II}) and the control unit is adapted to controlling the self-ignition of the fuel mixture towards an optimum crankshaft angle (cad_{iopt}) within a first subrange (L_I) by means of a strategy (I) which entails a variable amount of hot exhaust gases being supplied to or retained in the combustion chamber, and within a second subrange (L_{II}) by means of another strategy (II) which entails the effective compression ratio (c) in the cylinder being varied. When an HCCI engine has a load whereby an exactly ideal combination of fuel and air is supplied to the combustion chamber, the fuel mixture self-ignites at an optimum crankshaft angle. When the HCCI engine operates within a lower than

ideal load subrange, a leaner fuel mixture is supplied to the combustion chamber. Such a fuel mixture does not self-ignite during compression in the cylinder. Within that subrange, the control unit applies a strategy which provides earlier ignition of the fuel mixture. This strategy entails hot exhaust gases being supplied to or retained in the combustion chamber. Supplying or retaining a suitable amount of hot exhaust gases in the combustion chamber enables the fuel mixture to be brought to a temperature such that it self-ignites at an optimum crankshaft angle. When the HCCI engine operates within a higher than ideal load subrange, a more powerful fuel mixture is supplied to the combustion chamber. Such a fuel mixture self-ignites at a premature crankshaft angle. Within this subrange the control unit applies a strategy which delays the self-ignition of the fuel mixture. This strategy entails the compression ratio in the cylinder being reduced. By suitable reduction of the compression ratio in the cylinder, self-ignition can be caused to take place at an optimum crankshaft angle. According to the present invention, the control unit uses different strategies for controlling self-ignition in different load subranges on either side of an ideal load. The result is control within two mutually adjacent load subranges. This means that the HCCI engine can be controlled within a relatively large combined load range.

Please replace the paragraph beginning at page 4, line 22, with the following rewritten paragraph:

The object of the invention is also achieved by the method of the kind mentioned in the introduction ~~which is characterised by the features indicated in the characterising part of claim 11~~. Using two different strategies for controlling the self-ignition of the fuel mixture within different but mutually adjacent load subranges enables continuous control, within a relatively broad load range, of the self-ignition of the type of combustion engines usually called HCCI engines.